

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A measuring method of ~~measuring a superficial chemical species which comprises~~ comprising the steps of:

irradiating a white light to a biological surface as a sample;

detecting a spectrum of the white light reflected from two or more positions on said biological surface;

plotting an absorbance of said spectrum to a spectral multi-dimensional space of light;

conducting a multivariate analysis of a data on said spectral multi-dimensional space obtained from said two or more positions to obtain eigenvectors of at least first, second and third principal components; and

projecting the data of each position onto a direction of the eigenvector of ~~at least one of said at least three principal components except said first principal component~~ to measure at least one of a total amount of hemoglobin, an amount of melanin, an amount of talaporfin, and a difference in amount between oxygenated hemoglobin and reduced hemoglobin, which exist on said biological surface ~~the concentration of the superficial chemical species on said biological surface and a concentration difference therebetween~~, based on a magnitude of the component of said data with respect to the direction of said eigenvector.

2. (Cancelled)

3. (Cancelled)

4. (Currently Amended) The method of ~~measuring a superficial chemical species~~ according to claim 1, wherein said multivariate analysis is conducted with said spectrum of light having wavelength bands of from 500 to 600nm ~~and~~ or 500 to 850nm.

5. (Currently Amended) The method of ~~measuring a superficial chemical species~~ according to claim 1, wherein said multivariate analysis is conducted with said spectrum of light having wavelength bands of from 500 to 600nm ~~and~~ or 700 to 780nm.

6. (Currently Amended) The method of ~~measuring a superficial chemical species~~ according to claim 1, wherein said multivariate analysis is conducted with said spectrum of light having wavelength bands of from 500 to 600nm, or 500 to 850nm ~~and or~~ or 700 to 780nm.

7. (Cancelled)

8. (Cancelled)

9. (Currently Amended) The method of ~~measuring a superficial chemical species~~ according to claim 1, wherein talaporfin is administered to said biological surface so that said multivariate analysis is conducted with said spectrum of light having a basic wavelength band of from 600 to 700nm.

10. (Currently Amended) The method of ~~measuring a superficial chemical species~~ according to claim 1, wherein said multivariate analysis is. conducted with said spectrum of light having a basic wavelength band of 700nm or above.

11. (Currently Amended) The method of ~~measuring a superficial chemical species~~ according to claim 1, wherein said multivariate analysis is conducted with said spectrum of light having basic wavelength bands of from 500 to 600nm ~~and or~~ or 500 to 850nm, while a data of at least one position on said biological surface is projected onto the directions of the eigenvectors of said second and third principal components ~~to~~ to display a change of magnitude thereof with time.

12. (Currently Amended) An apparatus for measuring a ~~superficial chemical species~~ comprising:
~~a means for~~ an irradiating device irradiating a white light to a biological surface ~~the superficial chemical species~~ as a sample;

~~a means for~~ a detector detecting a spectrum of the white light reflected from two or more positions on said biological surface ~~superficial chemical species~~;

~~a means for~~ a plotter plotting an absorbance of said spectrum to a spectral multi-dimensional space of light;

~~a means for a calculator~~ obtaining eigenvectors of at least first, second and third principal components by conducting a multivariate analysis of data on said spectral multi-dimensional space obtained from said two or more positions; and

~~a means for a display~~ displaying a magnitude of the component of said data on a gray scale or in colors according to the magnitude, on a two-dimensional screen by projecting the data of each position onto a direction of the eigenvector of said at least ~~one of the three~~ principal components ~~except said first principal component~~ to measure at least one of a total amount of hemoglobin, an amount of melanin, an amount of talaporfin, and a difference in amount between oxygenated hemoglobin and reduced hemoglobin, which exist on said biological surface the concentration of the superficial chemical species on said biological surface and a concentration difference therebetween, based on the magnitude of the component of said data with respect to the direction of said eigenvector.

13. (Currently Amended) The apparatus ~~for measuring a superficial chemical species~~ according to claim 12, wherein said ~~means for~~ irradiating device ~~a white light~~ is provided integrally with a ~~means for~~ condenser condensing reflection from two or more positions on said ~~superficial chemical species sample~~ biological surface by combining them with an optical fiber.